

1 7. A method of claim 1, wherein said laser beam is a solid state diode laser having a wavelength
2 range of about (0.95 – 2.1) microns with a power higher than 1 watt and focused to a spot size
3 less than 0.5 mm on the sclera surface.

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5 8. A method of claim 1, in which said beam spot controller consists of at least one focusing
6 spherical lens to couple the said laser beam to the said fiber delivery unit.

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8 9. A method of claim 1, wherein said fiber delivery unit consists of an optical fiber having a length
9 of about (0.5 - 1.5) meter and core diameter of about (0.2 - 0.8) mm and a hand piece connected
10 to a fiber tip.

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12 10. A method of claim 9, wherein said fiber delivery unit is substantially transparent to the
13 wavelength of the said laser beam.

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15 11. A method of claim 9, wherein said fiber tip is made of a similar material as that of the fiber
16 and is made in one of the following shapes to focus the said laser beam onto the treated sclera
17 area of the eye: conical, spherical, 90-degree reflecting angle and flat end.

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19 12. A method of claim 9, wherein said fiber tip focuses the said laser beam onto the treated area
20 of the eye at a spot size of about (0.1 - 0.5) mm in diameter.

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22 13. A method of claim 9, wherein said fiber tip is made in a cylinder shape to focus the said laser
23 beam onto the treated area of the eye at a line shape having a dimension of about (0.1 - 0.4) in
24 width and (0.5 - 4.0) mm in length.

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26 14. A method of claim 9, wherein said fiber tip is operated in a contact-mode to ablate the sclera
27 tissue to a depth of about (300 - 800) microns.

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29 15. A method of claim 9, wherein said fiber tip is operated in a non-contact mode to ablate the
30 sclera tissue to a depth of about (300 - 800) microns.

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32 16. A method of claim 1, wherein said fiber delivery unit is controlled by the surgeon to perform a
33 predetermined patterns outside the limbus of the eye by manually moving the fiber tip in the radial
34 direction of the cornea.

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36 17. A method of claim 1, wherein said fiber delivery unit is attached to a scanning device to
37 perform said predetermined patterns outside the limbus of the eye and scan said laser beam
38 along the radial direction of the cornea.

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40 18. A method of claim 1, wherein said predetermined patterns outside the limbus of the eye
41 defined by the area between two circles having radius of about 5.0 mm and 9.0 mm, respectively.

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43 19. A method of claim 1, wherein said predetermined pattern includes at least 3 radial lines
44 around the area outside the corneal limbus.

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46 20. A method of claim 1, wherein said predetermined pattern includes at least two rings formed
47 by 8 circular spots having a diameter of about (0.2 - 0.5) mm around the area outside the corneal
48 limbus.

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